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AUTHOR Gelfman, Arnold J.; Banacki, J. Robert
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ABSTRACT

Using figures for Monmouth County and Brookdale Community College (BCC) in New Jersey, this report presents a methodological model for using census tract data to determine the impact of a college or university on the communities it serves. Introductory material lists the types of demographic information available for each census tract and states the objectives of the BCC demographic study. The next section explains the procedures whereby census tract numbers were determined for all BCC students and comparisons between BCC and census tract demographics were made. Information on contract costs and software is provided. Finally, findings are presented, indicating that: (1) the mean participation rate for the tracts was 14.8%, with a range of 0.0 to 31.4%; (2) BCC's overall impact rate into the group of tracts with the smallest number of persons aged 15 and over was 13.4%, compared to an impact rate of 11.1% into tracts with extremely large numbers of persons aged 15 and over; (3) the tracts with the highest proportions of adults were older, geographically smaller, and more established communities along the eastern seashore of the county; (4) women comprised 59.4% of the entering students from tracts with the smallest proportions of adults and 57.5% of the entering students from tracts with the largest proportion of adults; and (5) while 10.9% of Monmouth County's population is made up of Blacks, Puerto Ricans, and other Hispanics, only 6.9% of BCC students identified themselves as belonging to these groups. Recommendations for educators interested in implementing this research model are provided throughout the report. (EJV)

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A Model Program to Assess a College's Impact by Census Tract

Arnold J. Gelfman
&
J. Robert Banacki

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JC 880 201

BROOKDALE COMMUNITY COLLEGE

Submitted by
Dr. Joshua Smith, President
November 10, 1987
To
Dr. T. Edward Hollander, Chancellor
N.J. Department of Higher Education
225 West State Street-CN542
Trenton, New Jersey 08625

Introduction

In order to properly identify the impact of a college or university on the communities served by that institution, it is necessary to totally understand the demographics of those communities. Most colleges maintain a system for identifying the demographics of its student population. However, few, if any, colleges are aware of the relationship between its demographics and those of the communities they serve.

One of the most powerful ways to determine the demographics of a college's community is through the use of census tracts. This is especially true for community colleges where the community is usually defined by the boundaries of the county. For example, Monmouth County is composed of 53 district boroughs, townships and cities. However, the total number of census tracts is 124. For each of these census tracts, the following demographic information is available:

Twelve profiles from STF 3 (1980 Census)

1. Total population, race, sex by age, race by sex by age, marital status, and children ever born
2. Persons in household, household relationship, group quarters, and family type by presence of children
3. Language spoken, ancestry, nativity, place of residence in 1975, veterans status, and disability
4. Labor force status by race & sex & by presence of children, occupation, industry, & class of worker
5. Place of work, journey to work, automobile availability, employment in 1979

6. School enrollment and years of school completed
7. Household, family, and per capita income in 1979
8. Poverty status of families and persons in 1979
9. Housing units, occupancy status, units in structure, and year structure built
10. Bedrooms, bathrooms, kitchen facilities, heating equipment and fuel, and telephone availability
11 Gross rent and monthly owner housing costs
12. Mean value of housing, heating equipment by year structure built, and plumbing characteristics

This same information is also available for the county as a whole. Therefore, it is possible to determine the relationship of each of the demographic characteristics in each of the census tracts to the mean of those characteristics in the county.

Since a census is defined by distinct boundaries, it is possible to determine the streets and addresses contained within the tract. Furthermore, since Brookdale's student data base contains the street address for each student, it is then possible to determine the number and percentage of students who attended this college from each of the census tracts. Once able to accomplish this task, the College would also have the capacity to compare other demographic data with that available for the census tract. Therefore, the objectives for the project were as follows:

1. To identify the exact street addresses for every census

tract in Monmouth County.

2. To develop a computer program that would match all students who have attended Brookdale since 1980 with the appropriate census tracts.
3. To determine the impact of Brookdale in each census tract by comparing the unduplicated headcount with the population of the census tract.
4. To compare Brookdale's demographics with the demographics of each census tract in the following areas:

    Age

    Sex

    Ethnic status

5. To determine the means and standard deviations for each of the following census tract characteristics by percentage and number:

    Sex

    White population

    Black population

    Asian/Pacific Islander population

    Puerto Rican population

    Hispanic other than Puerto Rican population

    American Indian population

    English proficiency

    Unemployment level

    Highest education level

Family income

Income below poverty level

6. For census tracts that fall one standard deviation or more above or below the mean for the county, to determine Brookdale's impact and to compare them with the data for the county as a whole.
7. To publish a report that summarizes the data, highlights areas of impact, and recommends plans of action.

Procedures

Since census tracts are defined by physical boundaries, such as, streets, it is possible to determine the census tracts for most Brookdale students through the use of their street addresses. However, there are a number of streets that traverse more than one census tract. Originally, it was expected that it would be necessary to have one individual travel through the county delineating the street address boundaries for each of these tracts. However, it was later discovered that some commercial firms specialized in this matching process. One of these firms, Urban Data Processing of Billerica Massachusetts, appeared to have the most capabilities and was thus granted a contract to provide census tract numbers for all Brookdale students from January, 1980 through the July 1987. The principals had been involved with the Census Bureau when it developed its program in the early 1980's; however, this program was not supported. When a member of the project staff contacted the Census

Bureau, he was informed that the programs still available were not guaranteed to provided accurate address matches. Conversely, Urban Data Processing did guarantee a match of 80 percent or greater.

The complexity of address matching is obvious. As with most colleges, Brookdale inputs most data base information by hand. Therefore, it is not uncommon to have the same streets or municipalities spelled in numerous different ways. For example, the town of Atlantic Highlands could be spelled A. Highlands, Atl. Highlands, Atlntc Hglnds and so forth. Therefore, to create an acceptable match, it would be highly recommended that other institutions also contract with firms that can perform this task accurately at a reasonable cost.

The result was that Urban Data Processing was able to match 86.94 percent of the 70,113 records that were able to be processed. Originally, 73,178 records were submitted: however, 3065 were rejected due to the fact that post office boxes or rural route delivery codes were used. A total of 9150 processed records could not be matched to census tracts. The breakdown by nonmatched category is as follows:

# Records	Reject Reasons
3417	No coverage in that area in the block group dictionary
322	Data record and dictionary record do not agree on first three characters of street name.

2958	No match on full street name
960	House number not in dictionary range
859	Data of record street components disagree with dictionary
634	Ambiguous match with the possibility of more than one match

The total cost for this matching service is $4.50 per thousand records processed up to 1,000,000 records. As the number of records processed increases, the cost per thousand decreases. The minimum charge is $750 which would allow for the processing of 167,000 records.

After the computer tape was received from the contractor, the Brookdale Computer Services Center added the other demographic data specified including age at time of entry, gender, and ethnic status. Age had to be computed by comparing the first day of the first term of entry with the birthdate as supplied by the student.

The STF 3 profiles for each census tract were obtained from the Monmouth County Planning Board. A Lotus 1-2-3 spreadsheet was then developed that included all the information by the proposal. A copy of that spreadsheet is appended to this report. By way of formulas available in Lotus, it was then possible to compute means, standard deviations, and the appropriate ranges for further investigation. Student demographics by census tract were added to the spreadsheet as soon as they were

made available.

One major obstacle in this study resulted from the fact that the STF 3 profile data sometimes included the same census tract more than once with different data each time. When the United States Census Bureau was contacted, it was learned that in some cases rather than create a new census tract, the same census tract number would be used for an newly developed adjacent area to an existing census tract. For the purposes of this study, these census tracts were combined, and the totals represented in the spreadsheet are accurate.

The findings discussed below focus on those census tracts that fall one or more standard deviation units above or below the means for the variables studied. It should be obvious that due to the magnitude of the elements studied, this represents only the beginning of Brookdale's study. Over the next few months, we will continue our analysis of the data to determine our levels of impact within our community.

Findings

Impact Rates

Census tracts are small areas into which cities and their adjacent areas have been divided for statistical reasons. Tract boundaries are established cooperatively by a local committee and the United States Bureau of the Census. Tracts are designed to be relatively uniform with respect to population characteristics, economic status, and living conditions.

The average United States tract contains about 1,500 households. The average tract in Brookdale's service county contained 1,420 households in 1980. The range of households per tract in Monmouth County in 1980 was wide, from 62 to 4,100 households.

The mean number of residents in Brookdale's service county during 1980 was 4,193 per tract with a wide range of 242 to 11,965. Furthermore, the mean number of persons most likely to be utilizing a college in the years following a census (those aged fifteen years and over at the time of the census) was 3,248 per Monmouth County tract. The range of this population was from 126 to 8.840 persons per tract. It is this population which is used as a base to calculate Brookdale's 1980 - 87 impact rates when student's addresses are able to be matched to a census tract.

Table I is a frequency distribution of these impact rates into Monmouth County's 120 census tracts.

Insert Table I about here

Upon inspection, it is clearly evident that the Brookdale impact rates into the tracts form neither a flat nor a steeply peaked nor an intensely skewed distribution indicating that the College is not serving all tracts equally nor is it serving only a relatively few tracts within Monmouth County intensively.

While kurtosis of the distribution of impact rates is certainly not equal to zero, the distribution of rates appears to sufficiently resemble a Gaussian distribution to indicate that normally distributed tract characteristics affect Brookdale impact rates and that the use of standard deviation units to isolate, study, and describe extreme tracts seems not only warranted for purely descriptive analysis purposes but also warranted as a more objective method than isolation by simple ranking.

Population and Impact Rates

The mean impact or penetration rate into tracts is 14.8 percent with a range of 0.0 to 31.4 percent. Tracts at or above 21.3 percent in impact rate are one or more standard deviation units above the mean. Tracts at or below 8.4 percent in impact rate are one or more standard deviation units below the mean.

Twenty Monmouth County tracts fell more than one standard deviation unit below the mean along a distribution of tracts by total 1980 population. The identical twenty tracts also fell more than one standard deviation unit below the mean along a distribution of tracts by the total number of persons aged fifteen and over in 1980. Conversely, fifteen Monmouth County tracts fell more than one standard deviation unit above the mean. These same fifteen tracts also fell more than one standard deviation unit above the mean when the total number of persons aged fifteen and over was distributed. With the excep

tion of two tracts (111 and 113) in Howell, tracts above one standard deviation unit above the mean in total were the identical tracts identified as being similarly situated along a distribution of tracts by the total number of persons aged fifteen and over.

Table II displays the Monmouth County tracts which fell below and above one standard deviation unit from the mean in terms of persons aged fifteen and over, and Brookdale's impact rates into these tracts.

Insert Table II about here

Brookdale's overall impact rate into that extreme group of tracts with the smallest amounts of persons aged fifteen or over is 13.4 percent compared to an overall impact rate of 11.1 percent into tracts with extremely large amounts of persons aged fifteen and over.

Inspection of the tracts containing the smaller amounts of persons aged fifteen and over indicate that the above difference in overall impact is probably wider. The observed difference is probably a combined artifact of the study procedures utilized and the peculiar nature of some of the tracts smallest in population:

Tract 03 - Middletown - which has a total population of only 242 persons (126 of whom were aged 15 or older in 1980)

is exclusively a United States Coast Guard station and a national park where residents have limited tours of duty (residence in Monmouth County) and whose residential address are among the least likely to be matched using the study procedures described. Seventy-one percent of the total population in the tract are males, the majority of whom probably reside in group quarters.

Tract 48 - Marlboro - is almost exclusively a N.J. state long-term psychiatric care facility. This tract contained only 91 households on the hospital grounds in 1980; residential address matching is unlikely to occur in this institutional setting.

Tracts 118 and 120 - Roosevelt and Allentown, respectively - are parts of a relatively large land mass that can be described as the southwestern panhandle of Monmouth County. This "peninsula" is almost surrounded by parts of Mercer, Burlington and Ocean counties This area is entirely rural, and Brookdale impact rates are heavily deflated by the inability to match residences on rural mail delivery routes with census tracts.

Removal of the two small, anomalous, institutional tracts and the two highly populated, difficult-to-match rural tracts from this comparison indicates that the overall Brookdale impact into tracts with the smallest amounts of persons aged 15 and over more closely approximates 15.8 percent, compared to only 11.1 percent in that group of tracts identified as having the largest amounts of persons aged fifteen or over.

While rural and institutional address matching problems also exist in those tracts with populations well above the mean and serve also to deflate impact rates in these areas, the effect is not as certain as in smaller tracts. Tract 111 - Howell - previously identified as being one of the tracts falling one standard deviation above the mean along the distribution of persons aged fifteen or over but not along the distribution of total population also contains a long-term residential care facility for troubled adolescents and is also rural. The low impact rate of 4.8 percent is probably partly due to these factors but their combined effect could not be total in explaining the rate, given the population size. Similarly, tract 99 - Colts Neck/Clover Hill - (the very tract in which the college's main campus is situated) shows no penetration by Brookdale. This is the only tract in Monmouth County where 100 percent of the residents reside in single-family dwelling units. This tract ranked fourth in median household income in 1980 and sixth in family income in this relatively affluent county. While vast portions, but not all, of this tract consist of large farms served by rural mail delivery, other factors must be studied to further account for the impact rate.

Table III displays those tracts which are extreme in the proportion of persons within the tract who are aged fifteen and over.

Insert Table I about here

In sharp contrast to the tracts displayed in Table II, entirely new groups of tracts emerge from this proportion comparison and the distribution moves decidedly from positive to negative skewness; nineteen tracts were identified as being well above the mean and only nine tracts were identified as being well below the mean.

Inspection of the impact rates associated with these two groups of extreme tracts highlights a phenomenon which is quite telling of a role of the community college. As might not be expected, those tracts with the lowest proportions of persons aged fifteen or more clearly show the higher impact rates. Removal of the two most extreme tracts -- 03 Middletown and 98 Marlboro, which were previously described as being almost exclusively institution in nature -- indicates that the overall Brookdale impact rate into the tracts with the lowest proportions of adults is fully 20.2 percent, which very closely approximates one standard deviation unit above the mean in penetration for all the county's tracts. Moreover, the overall Brookdale impact rate into that group of tracts with the highest proportions of adults is only 12.9 percent, almost half of a standard deviation unit below the mean in penetration for all the county's tracts.

The two groups of tracts also differed in the proportion of

young adults who normally comprise the plurality of college entrants. That group of tracts with the lowest proportions of adults had only 8.9 percent of their total population aged 18-24. That group of tracts with the highest proportions of adults had 12.1 percent of their total population aged 18-24.

Additionally, consideration of the possibility of deflated impact rates due to the inability to match rural addresses serves only to widen the vast difference in penetration noted. None of the tracts with the highest proportions of adults are likely to reflect such deflation, but a third of the tracts with the lowest proportions of adults could be considered likely candidates to exhibit such deflation.

Those tracts with the highest proportions of adults are all older, geographically smaller, established communities along the eastern seashore of the county. Sixty-five percent of these communities are below the mean in total population when all the county's tracts are considered. Those tracts with the lowest proportions of adults are situated in the western part of the county where large land areas are more amenable to growth and to population by younger families. Half of the tracts with the lowest proportions of adults are above the mean in total population when all the county's tracts are considered.

Monmouth County's growth rate was dramatic in the 1960-1970 period (38 percent increase in population) but also slowed dramatically in the 1970-1980 period (9 percent in population).

There is evidence that growth may have continued at a differential pace after the 1980 census within the two extreme groups of tracts described. Three of the communities with the highest proportions of adults actually lost population in the 1970-1980 period (Oceanport, Deal, Interlaken), but six of the communities with the lowest proportions of adults had been the largest growth areas in the 1970-1980 period (Tinton Falls, Marlboro, Robertsville, Manalapan Township, Freehold Township). This differential growth, however, only partly explains the vast difference in impact rates noted.

The ability to match students to census tracts allowed for further analysis of these disparate groups of tracts. Table IV displays students' age at entry to Brookdale, by gender, for the two extreme groups of tracts.

Insert Table IV about here

Women comprise 59.4 percent of the entering students from tracts with the smallest proportions of adults and 57.5 percent of the entering students from tracts with the largest proportions of adults. Women students from tracts with the smallest proportions of adults are more than twice as likely to enter Brookdale at ages 35-44 than women students from tracts with the highest proportions of adults. Men also tend to exhibit this tendency but to a lesser degree. Brookdale's appeal to women

returning to the education market at the time of relative freedom from the more physical demands of parenting appears to also affect the high impact rates noted in the tracts with large proportions of children in 1980.

College planners, recruiters and marketing committees, intending to use census tract information as guides to their programs and activities in Monmouth County, might be mindful of the following observations gleaned from this initial overview of population totals and impact rates:

- with minor exceptions, total populations can be used as a "surrogate" measure for the total population aged fifteen and over in Monmouth County.
- the distribution of the community college's target population -- those of sufficient age to utilize a college -- is positively skewed in Monmouth County. There are more census tracts falling well below the mean than well above in terms of number of persons aged fifteen or more at census time.
- student "yields" from less populated tracts are <u>proportionately</u> higher than yields from more populated tracts in Monmouth County.
- while the total number of students coming from less populated tracts could not approximate total numbers coming from more populated tracts, a natural tendency of outreach efforts to concentrate heavily on the highly populated tracts should be moderated. Initially perceived inefficiencies of

outreach efforts into less populated tracts could be somewhat offset by proportionately greater student "yields".

- while the proportion of persons aged fifteen and over within a tract is a useful indicator to describe a community college's role, it should be noted that this identifier, by itself, has limited discriminatory power for outreach efforts. While it can identify a few extreme tracts, the distribution of tracts is steeply peaked. Ninety-two or 77 percent of Monmouth County's tracts cluster tightly around the mean of 77.7 percent aged fifteen or over with a range of only 72-82 percent within one standard deviation unit from the mean.

Those colleges planning to conduct a similar impact study by census tracts might initially investigate the presence of large institutions in otherwise lightly populated tracts. The proportion of persons residing in group quarters, the institutions' type and the expected length of stay of residents in the area are worthy of initial scrutiny. The <u>apriori</u> removal of certain tracts from impact consideration would, of course, affect the means and standard deviations of subsequent distriibutions and analyses.

While census tract boundaries crisscross postal zip code boundaries extensively in the more populated, urbanized areas, there may be less crossovers in rural areas. Those colleges planning a similar impact study might initially investigate

census data for contiguous rural tracts if they are within an unshared zip code boundary. If the rural tracts can be reasonably combined statistically, a second stage matching of students' addresses by zip code could be employed to obtain less deflated estimates of impact rates in rural route delivery areas.

Ethnic/Racial Designation and Impact Rates

Table V presents a 1980 census ethno-racial profile of Monmouth County and the same profile of the Brookdale Students served during the period 1980-1987. For the Brookdale students, two distributions are presented -- including and excluding approximately 7,000 students who exercised an option of not responding to the college application question on race/ethnicity.

Insert Table V about here

Generally, no matter which distribution of Brookdale students is used, it is clear that there are no exceptionally wide disparities between the students' ethno-racial profile and that of the entire service area's population as described by the census of 1980.

The mission of the community college, however, is to extend higher educational opportunities to those who traditionally had little such opportunity. This lack of opportunity has been associated largely with minority groups. It is a reasonable

expectation of a community college to see a somewhat larger representation of minority group members in its population than in the general population.

Given the very extensive outreach efforts Brookdale has made into minority communities, the estimates of the proportions of black, Puerto Rican and other Hispanic students served is a matter of great concern. While 10.9 percent of Monmouth County's population is comprised of members of these groups, only 6.9 percent of Brookdale students identified themselves as members of these groups. This proportion rose 7.8 percent when only those students who did identify themselves are considered. The exclusion of the unknowns", of course, amounts to nothing more than apportioning the "unknowns" according to the way most students did identify themselves. The ability to match students to census tracts sheds light on this major concern.

Tables VI, VII, and VIII present those Monmouth County tracts which fell above plus one standard deviation unit from the mean in total number of blacks, Puerto Ricans and other Hispanics, respectively. Brookdale's impact rates into the adult population (aged fifteen or more in 1980) are also presented in these tables.

Insert Tables VI-VII about here

A review of the series of Tables VI-VIII clearly shows the

differential dispersion of the minority population throughout Monmouth County. The black population is heavily concentrated geographically, the Puerto Rican population somewhat less, and the other Hispanic population is widely dispersed throughout the county. Fully 66 percent of the county's entire black population is concentrated in the fifteen tracts shown. Blacks comprise from 21 percent to 94 percent of the population in these tracts. Only 52 percent of the Puerto Rican population is concentrated in the 12 tracts shown and it comprises only 5 percent to 14 percent of the population in these tracts. It is difficult to find a significantly sized other Hispanic community -- only 48 percent of the county's other Hispanic entire population resides in the twenty-three tracts shown and other Hispanics account for only 1 percent to 6 percent of the population in these tracts. Minority outreach efforts, of course, are affected by this differential concentration/dispersion of minority groups in Monmouth County.

Inspection of the tracts having the largest black populations indicates that the fifteen tracts are located in five municipalities - Neptune Township, Red Bank, Asbury Park, Long Branch, Tinton Falls and Freehold Borough. While large Puerto Rican populations are also found in four of these same municipalities, only four of the twenty-seven tracts shown for blacks and Puerto Ricans are mutually shared by large populations of both groups. Only five of the twenty-three tracts shown for other

Hispanics are heavily populated by a black and/or Puerto Rican population.

Table IX presents those Monmouth County tracts which fell above plus one standard deviation unit from the mean in terms of the total number of Asian/Pacific Islanders. Brookdale impact rates into the adult population (aged fifteen or more in 1980) of these tracts are also presented in this table.

Insert Table IX about here

The Asian population disperses in yet another fashion than other minority groups in Monmouth County. Fifty-three percent of the county's entire Asian population is concentrated in the seventeen tracts shown where the Asians comprise from 1 percent to 7 percent of the total population. Even a cursory review of these tracts indicates that none are "minority" tracts but rather the "bedroom community" tracts housing the families of professional and technical staff serving the county's computer, electronics and telecommunications design industries, hospitals and military installations. Minority outreach to the various populations in Monmouth County cannot be general, but targeted.

The college has established Learning Centers and extension service sites which are conveniently located to serve the vast majority of the tracts shown with large black and Puerto Rican populations. Based on these experiences and other campus obser

vations, it is often felt that the ethno-racial designation of the student population inadequately reflects minority representation.

The overall Brookdale impact rate for the fifteen tracts with the heaviest concentration of blacks is 14.5 percent --almost precisely at the mean for impact rates for all of the county's tracts. Indeed, one of these tracts shows a 31.4 percent impact rate, the highest observed in Monmouth County. Three of the tracts show penetration rates above 21.3 percent which are one or more standard deviation units above the mean in county penetration. Only one tract has a penetration rate below 8.4 percent which is one standard deviation unit below the mean for the county.

The overall Brookdale impact rate for the twelve tracts with the heaviest concentration of Puerto Ricans is 13.9 percent well within one half of a standard deviation unit below the mean for the county. While none of the rates are especially high in penetration, only three could be said to be approaching one standard deviation unit below the mean.

The overall Brookdale impact rate for the twenty-three tracts with larger concentrations of other Hispanics is 17.0 percent -- above the mean for impact rates for all the county's tracts. Seven of the twenty-three tracts display impact rates one or more standard deviation units above the mean for impact rates in the county. In contrast to the tracts enumerated for

the black and Puerto Rican populations, the tracts with larger concentrations of other Hispanics are more subject to the rural mail delivery deflation of impact rates.

The overall Brookdale impact rate for the seventeen tracts with the larger concentrations of Asians is 19.3 percent, almost a full standard deviation unit above the mean. Like the tracts housing other Hispanics, some of these tracts are also of the kind subject to rural mail delivery deflation of impact rates.

Given these apparent inconsistencies, it was decided to take advantage of the facts that blacks (who comprise 69.4 percent of the county's minorities) are heavily concentrated geographically and that students are now able to be matched to census tracts. An analysis of majority/minority student choice of the option not to report ethno-racial designation was clearly called for by the above data. Accordingly, the top eight Monmouth County tracts with more than 50 percent black population were selected for further analysis. To the black population totals, Puerto Rican and other Hispanic as well as Asian population totals were added. The eight tracts then ranged from 53 percent to 99 percent in minority population with a mean of 77 percent minority population. The choice of the "no response" option made by the 2.286 students who resided in these tracts was examined by age and gender of the students.

As a comparison group, the eight top Monmouth County tracts in terms of proportions of white population were also selected

for further analysis. These eight tracts ranged from 99.5 percent to 99.8 percent in majority population. The choice of the "no response" option made by the 3,915 students who resided in these tracts was distributed by age and gender of the students.

Table X presents the "no response" choice made by students from these highly disparate tracts as a percentage of age at entry and gender groupings.

Insert Table X about here

By maximizing the probability that a student's true majority/minority ethno-racial designation is known using census tract matching, it is abundantly clear that the estimates of the college's minority student populations are, indeed, deflated. The youngest students, those who comprise 56 percent of the students entering from majority tracts and 52 percent of the students entering from minority tracts show a large difference in their choice of the 'no response" option. Young students from minority tracts are more than one and a half times as likely not to report their ethno-racial designation than similarly aged students from majority tracts. This is especially true for young female students.

Older students, those aged thirty-five or more, also show this large difference and they, too, account for substantial

numbers of the student population. Twenty-five percent of the students from the majority tracts are so aged as well as 19 percent of the students from the minority tracts.

Students aged twenty-five to thirty-four show a very slight reversal of this pattern but their numerical impact on enrollments from both types of tracts cannot reverse the heavy impact of the other age groups' combined choices on reporting ethno-racial designation.

Analyses of previous years' student cohorts for purposes of retention have always run into the problem of unreported ethno-racial designation. For some prior years' cohorts, the proportions of "unknowns" ran as high as 28 percent. The ratios developed above could be utilized in a re-analysis of retention data. Additionally, the ratios developed above should be utilized to prepare a revised ethno-racial profile of the Brookdale student population for the years 1980-1987. While many attempts were made in the past to estimate the nature of non-response to the ethno-racial application question, the reliance on town names, judgements, small samples, and the lack of adequate comparison groups proved insufficient and cumbersome. Census tract matching of students has allowed large numbers of students' reports to readily enter the analysis.

Colleges might find census tract matching of students useful in understanding similarly puzzling estimates of student population characteristics where it is strongly felt that the

realities do not entirely agree with available data. As indicated previously, Brookdale will continue with its analysis of the census tract data and will utilize the techniques described above to gain an even clearer picture of its current community impact and of future areas for exploration

TABLE I

Frequency Distribution of BCC 1980-87 Impact Rates into Sevice Area Census Tracts

Impact Rate (%)		Number of Tracts
0	xxxxx	5
1	x	1
2	x	1
3		0
4		0
5	xx	2
6	xx	2
7	x	1
8		0
9	xxxxxx	6
10	xxxxxxx	7
11	xxxxxxxxxxx	11
12	xxxxxxxxx	9
13	xxxxxxx	7
14	xxxxxxxx	8
15	xxxxxxx	7
16	xxxxx	5
17	xxxxxxxx	8
18	xxxxxxxx	8
19	xxxxx	5
20	xxx	3
21	xxxx	4
22	xxxxxxxx	8
23	x	1
24	xxxx	4
25		0
26	xx	2
27	x	1
28	xx	2
29	x	1
30		0
31	x	1
Total		120

TABLE II

Census Tracts Below and Above One Standard Deviation Unit in Population Aged Fifteen and Over (1980) and Associated Brookdale Community College Impact Rates

Below -1 S.D. Unit				Above +1 S.D. Unit			
Tract #	Name	15+ Pop.	BCC Impact	Tract #	Name	15+ Pop.	BCC Impact
03	Middletown	126	2.4	111	Howell	4938	4.8
118	Roosevelt	651	0.0	80	Neptune Twp.	5188	17.3
48	Tinton Falls	731	11.4	21	Hazlet	5260	18.6
103	Englistown	755	11.7	84	Belmar	5809	11.5
44	Shrewsbury	822	21.5	113	Howell	5928	11.8
52	Oceanport	824	10.6	99	Colts Neck/Clov.	6009	0.0
67	Interlaken	868	15.8	62	W. Long Branch	6047	14.5
69	Loch Arbor	1067	17.7	114	Candlewood	6197	17.5
116	Farmingdale	1069	12.3	07	Middletown	6261	21.9
47	Tinton Falls	1081	24.3	06	Middletown	6365	13.5
46	Tinton Falls	1113	20.6	50	Eatontown	6449	18.5
98	Marlboro	1179	0.0	70	Asbury Park	7025	10.0
90	South Belmar	1306	11.1	65	Ocean Twp.	7240	21.4
107	Freehold	1406	14.5	105	Freehold Twp.	7314	17.4
49	Eatontown	1416	22.0	100	Manalapan	8840	20.0
120	Allentown	1477	0.6				
68	Deal	1628	14.1				
40	Sea Bright	1634	16.5				
29	Aberdeen	1670	23.0				
102	Manalapan	1686	4.7				

TABLE III

Monmouth County Census Tracts Below and Above One Standard Deviation Unit in Proportion of Population Aged Fifteen and Over (1980) and Associated Brookdale Community College Impact Rates

Below -1 S.D. Unit				Above +1 S.D. Unit			
Tract #	Name	Recent Aged 15 +	BCC Impact	Tract #	Name	Recent Aged 15 +	BCC Impact
03	Middletown	52.1	2.4	81	Neptune City	83.0	9.7
47	Tinton Falls	61.8	24.3	69	Loch Arbor	83.3	17.7
97	Marlboro/Rob.	63.2	26.7	68	Deal	83.4	14.1
96	Robertsville	65.6	24.2	90	South Belmar	83.4	11.1
49	Eatontown	67.2	21.9	61	Long Branch	83.4	15.1
102	Manalapan	71.4	4.7	67	Interlaken	83.7	15.8
56	Long Branch	71.7	10.6	41	Monmouth Beach	84.1	17.5
101	Manalapan	71.9	22.1	83	Avon	84.8	13.1
104	Freehold Twp.	71.9	17.9	92	Sea Girt	85.6	10.9
				89	S. Lake Heights	85.7	11.3
				84	Belmar	85.8	11.5
				52	Oceanport	86.0	10.6
				70	Asbury Park	86.0	9.8
				60	Long Branch	86.2	15.2
				35	Red Bank	86.7	16.6
				36	Red Bank	87.7	14.9
				40	Sea Bright	90.2	16.5
				74	Neptune Twp.	90.3	12.0
				98	Marlboro	96.5	0.0

TABLE IV

Age at Entry to Brookdale; Students From Census Tracts Extreme in Proportion of Persons Aged 15 and Over (1980) (Percent)

Age at Entry	Students from Tracts Below -1 S.D. Unit			Students from Tracts Above +1 S.D. Unit		
	Female	Male	Both	Female	Male	Both
18-24	48.2	62.6	54.1	48.2	57.0	51.9
25-34	19.8	19.3	19.6	27.9	27.4	27.7
35-44	24.0	11.7	19.0	11.3	7.4	9.7
45-54	5.8	4.3	5.2	6.5	3.4	5.2
55-64	1.5	1.1	1.3	3.6	1.9	2.9
65 +	0.8	1.0	0.8	2.6	2.8	2.7
Total	100.1	100.0	100.0	100.1	99.9	100.1
N	2,591	1,772	4,363	3,998	2,945	6,943

TABLE V

Ethno-Racial Profiles of Monmouth County Residents (1980) and Brookdale Students (1980-87) (Percent)

Ethnic/ Racial Groups	Monmouth Co. Pop. (1980)	Brookdale Students (1980-87) Including "No Response"	Excluding "No Response"
White	87.7	79.7	89.8
Black	8.4	5.4	6.1
Puerto Rican	1.4	0.7	0.8
Other Hispanic	1.1	0.8	0.9
Asian	1.0	2.0	2.2
N. American Ind.	0.1	0.1	0.1
No response	---	11.3	---
Total	99.9	100.0	99.9

TABLE VI

Census Tracts Above +1 Standard Deviation Unit in Total Black Population and Associated Impact Rates into Adult Population (All Ethnic/ Racial Designations)

Tract #	Name	1980-Number of Blacks	Impact Rate (%)
76	Neptune Twp.	2889	9.1
34	Red Bank	2637	12.6
73	Asbury Park	2588	12.1
72	Asbury Park	2578	6.8
55	Long Branch	2105	14.0
56	Long Branch	1814	10.6
77	Neptune Twp.	1802	14.0
78	Neptune Twp.	1758	21.6
71	Asbury Park	1677	14.1
70	Asbury Park	1692	9.8
75	Neptune Twp.	1552	9.9
45	Tinton Falls	1335	23.6
108	Freehold Boro	1283	10.6
54	Long Branch	1175	16.6
79	Neptune Twp.	1145	31.4

TABLE VII

Census Tracts Above +1 Standard Deviation Unit in Total Puerto Rican Population and Associated Brookdale Impact Rates into Adult Population (All Ethnic/Racial Designations)

Tract #	Name	1980-Number of Puerto Ricans	Impact Rate (%)
70	Asbury Park	495	9.8
58	Long Branch	442	12.8
59	Long Branch	429	12.7
56	Long Branch	421	10.6
54	Long Branch	349	16.6
112	Howell/Candlewood	273	8.9
57	Long Branch	248	13.7
110	Freehold Boro	236	11.7
82	Bradley Beach	231	13.2
20	Keyport	229	10.0
75	Neptune Twp.	227	9.9
19	Keyport	184	12.4

TABLE VIII

Census Tracts Above +1 Standard Deviation Unit in Total Other Hispanic Population and Associated Brookdale Impact Rates into Adult Population (All Ethnic/Racial Designations)

Tract #	Name	1980-Number of Other Hispanics	Impact Rate (%)
97	Marlboro/Robertsville	162	26.7
36	Red Bank	161	14.9
72	Asbury Park	160	6.8
105	Freehold Twp.	151	17.4
7	Middletown	146	21.9
23	Hazlet	138	17.2
18	Union Beach	127	10.9
21	Hazlet	122	18.6
100	Manalapan/Gordon's C.	122	19.9
50	Eatontown	121	18.5
78	Neptune Twp.	119	21.6
24	Hazlet	118	21.3
33	Holmdel	114	29.3
34	Red Bank	114	12.6
17	Keansburg	113	9.0
117	Millstone	112	0.0
96	Robertsville	98	24.2
59	Long Branch	95	12.7
6	Middletown	95	13.8
55	Long Branch	93	11.7
49	Eatontown	91	21.9
113	Howell	91	11.8

TABLE IX

Census Tracts Above +1 Standard Deviation Unit in Total Asian/Pacific Islanders Population and Associated Brookdale Impact Rates into Adult Population (All Ethnic/Racial Designations)

Tract #	Name	1980-Number of Asian/ Pacific Islanders	Impact Rate (%)
65	Ocean Twp.	306	21.4
50	Eatontown	265	18.5
24	Hazlet	227	21.3
100	Manalapan/Gordon's C.	175	19.9
28	Aberdeen	169	25.6
104	Freehold Twp.	153	17.9
49	Eatontown	151	21.9
21	Hazlet	141	18.6
99	Colts Neck/Clover Hill	124	0.0
95	Marlboro/Robertsville	120	13.8
96	Robertsville	119	24.2
11	Middletown	116	25.9
15	Middletown	116	28.3
106	Freehold Twp.	109	6.4
39	Rumson	105	17.6

TABLE X

Brookdale Students' Choice of "No Response" to Request of Ethnic/Racial Identification by Census Tract Type, Age, and Gender

Students from concentrated majority tracts:

Gender	Age at entry: 18-24		25-34		35 +		All ages	
	%	N	%	N	%	N	%	N
Female	11.0	1096	12.5	457	9.2	710	10.7	2263
Male	11.2	1109	13.1	290	10.7	253	11.4	1652
Both	11.1	22.5	12.7	747	9.6	963	11.0	3915

Students from concentrated majority tracts:

Gender	Age at entry: 18-24		25-34		35 +		All ages	
	%	N	%	N	%	N	%	N
Female	17.3	672	12.5	360	13.2	296	15.1	1328
Male	16.5	538	10.6	283	18.2	137	15.0	958
Both	16.9	1210	11.2	643	14.8	433	15.1	2286

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